IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	09/050,808
Appellant:	Yutaka Machida
Filed:	March 30, 1998
Title:	DECODING AND CODING METHOD OF MOVING IMAGE SIGNAL, AND DECODING AND CODING APPARATUS OF MOVING IMAGE SIGNAL USING THE SAME
TC/A.U.:	2613
Examiner:	Allen C. Wong
Confirmation No.:	7277
Docket No.:	MAT-5860

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Responsive to the Final Official Action dated December 30, 2003, Appellant is submitting this Appeal Brief for the above-identified application.

I. REAL PARTY IN INTEREST

The real party in interest is Matsushita Electric Industrial Co., Ltd.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

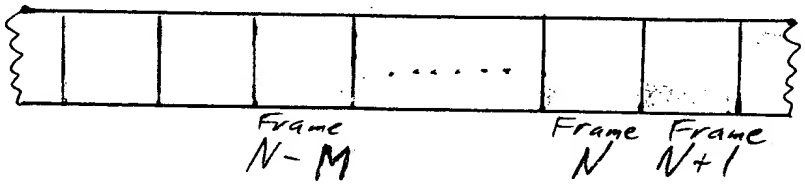
Claims 2, 7 and 12-22 are pending. Claims 1, 3-6 and 8-11 have been cancelled. Claims 2, 7 and 12-22 have been appealed.

IV. STATUS OF AMENDMENTS

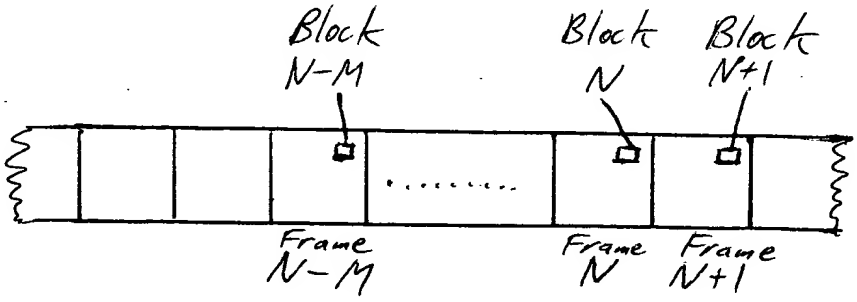
An Amendment after final rejection was filed on February 27, 2004. Appellant's representative argued that this Amendment did not raise new issues. The Examiner disagreed. Accordingly, that Amendment has not been entered.

V. SUMMARY OF INVENTION

The present invention relates to a method for decoding a block in a frame. The frame is one of a plurality of successive frames (Appellant's Fig. 2) in a predictively coded image signal. Thus, the plurality of frames may be referred to as frames N-M, N, and N+1 where M is ≧ 1. This is illustrated below.



The first step is to evaluate block N of frame N and block N-M of frame N-M (Appellant's specification, page 11, lines 23-26). Block N and block N-M are in corresponding locations. This is illustrated below:



An error is identified in block N or block N-M (Appellant's specification, page 12, lines 13-15).

If the error is identified in block N, then block N-M is used to decode block N+1. If the error is found in block N-M, then block N is used to decode block N+1 (Appellant's specification, page 13, lines 17-21).

An apparatus is also disclosed (and illustrated in Appellant's Fig 1) for performing the method set forth above. Thus, a detector evaluates block N (of frame N) and block N-M (of frame N-M). If the detector identifies an error in block N, then block N-M is used to decode block N+1. If the detector identifies an error in block N-M, then block N is used to decode block N+1.

VI. GROUPING OF CLAIMS

Claims 2, 7 and 13-22 stand or fall together. Claim 12 stands separately from the other claims because it explicitly states that the decoding is based on the identification of error in one of the two prior blocks. While Appellant takes the position that the relationship between identification and coding is necessarily implied in the other claims, claim 12 has been selected to stand separately for purposes of this Appeal, in an overabundance of caution.

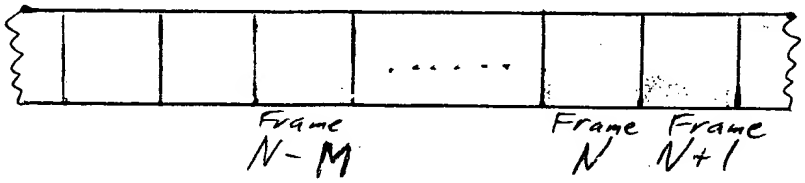
VIII. ARGUMENT

Claims 2, 7 and 12-22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Sun (U.S. Patent No. 5,247,363) in view of Tahara (U.S. Patent No. 5, 633,682). This rejection is respectfully traversed for the reasons set forth below.

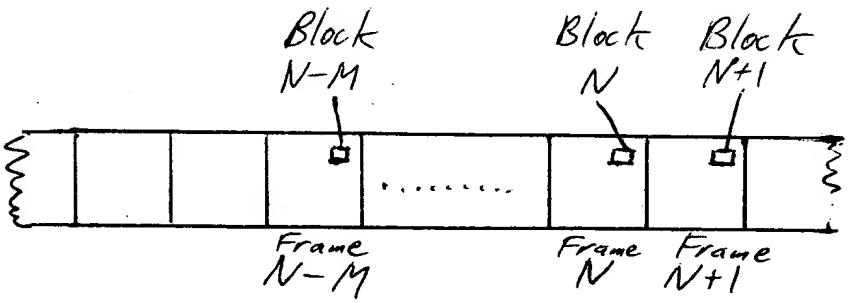
Appellant acknowledges that Sun discloses error detection and correction. Error detection and correction is known in the art.

The Official Action further acknowledges that Sun does not disclose looking at two frames prior to the present frame (Official Action, page 4, lines 3-4). Thus, in order to complete the rejection, the Official Action needed to combine Sun with Tahara. Tahara Figure 4 shows that a frame may be constructed based on several previous frames. For example, in Tahara frame F3 is shown as being based on frame F2 and frame F1.

However, Tahara says absolutely nothing about identifying an error in one previous frame and then using another previous frame to decode the present block. More specifically, Appellant's claim relates to the following frame sequence:



Each frame has a block in a corresponding location as shown:



Appellant's have claimed the features of:

. . . identifying an error in one of block N and block N-1 . . .

. . . using the other of block N and block N-1 to decode block N+1.

Thus, if there is an error in block N, then block N-M is used to decode block N+1. Similarly, if there is an error in block N-M, then block N is used to decode block N+1.

Tahara Fig. 4, does not disclose detecting an error in one of F1 and F2 and then using the other of F1 and F2 to decode F3. Furthermore, Tahara does not disclose detecting an error in block F1 or F2 and then using the other of block F1 or F2 to decode block F3. In addition, Tahara does not disclose the above with blocks

F1, F2 and F3 being in corresponding locations in Frames F1, F2 and F3. Accordingly, Appellant's claim 21 is patentable over the art of record.

Appellant's claim 22 is similarly patentable over the art of record for the reasons set forth above.

The present Application includes claim 12. Claim 12 includes specific wording to the effect of, out of two blocks, one having an error, and one not having an error, the block without the error is used for decoding "based on the judging" of which block does not have the error.

In view of the arguments set forth above, the above identified application is in condition for allowance which action is respectfully requested.

Respectfully Submitted,

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LEA/ds/dmw
Enclosure: Pending Claims
Dated: July 2, 2004

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The Assistant Commissioner is hereby authorized to charge payment to Deposit Account No. **18-0350** of any fees associated with this communication.

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Donna M. Wellings

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APPENDIX OF CLAIMS

1. (Cancelled)

2. (Previously Presented) The method of decoding an image signal of claim 12, wherein if the predicted pixel blocks are free from decoding error,

the predicted pixel blocks produced from a latest decoded frame is used in reconstruction of the present pixel block.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Previously Presented) The decoding apparatus of claim 20, wherein the means for storing stores bit errors of plural video frames by plotting pixel blocks in which bit error is detected in each video frame in a form of decoding error maps.

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Previously Presented) A method of decoding block N+1 according to claim 21, wherein the image signal is a bit stream of a coded compressed video signal, the method further comprising the steps of:

decoding the bit stream for information defining pixel blocks, the information including motion vectors;

step b) includes the step of detecting an error in the information of one of the pixel blocks being blocks N and N-M in each of at least two frames which are prior to a present frame said present frame being frame N+1, said at least two frames being frames N and N-M;

storing error information of the one of the pixel blocks in each of the at least two frames which are prior to the present frame, in an error memory;

storing, in a frame memory, video information of the at least two frames which are prior to a present frame;

generating from the decoded motion vectors at least two predicted pixel blocks corresponding to a present pixel block in the present frame;

step b) further includes the step of judging if one of the at least two predicted pixel blocks corresponds to error information of the at least two frames stored in the error memory; and

step c) includes the step of using one of the at least two predicted pixel blocks in reconstructing the present pixel block based on the judging.

13. (Previously Presented) The method for decoding an image signal of claim 12, wherein each of the predicted pixel blocks is generated from reconstructed video frames by using motion vectors which correspond to the reconstructed video frames.

14. (Previously Presented) The method for decoding an image signal of claim 12, wherein if one of the at least two predicted pixel blocks is judged to correspond to error information stored in the error memory, the other of the at least two predicted pixel blocks is used in reconstruction of the present pixel block.

15. (Previously Presented) The method of decoding an image signal of claim 12, wherein if the at least two predicted pixel blocks are judged not to correspond to error information stored in the error memory, an average of the at least two predicted pixel blocks is used in reconstructing of the present pixel block.

16. (Previously Presented) A method of decoding block N+1 according to claim 21, said method further for reconstructing video frames of the image signal, the method further comprising the steps of:

decoding the image signal for information to define pixel blocks of video frames, the information including motion vectors;

step b) includes the step of generating decoding error maps indicating decoding errors of pixel blocks being blocks N and N-M in each of at least two

frames which are prior to a present video frame said present frame being frame N+1, said at least two frames being frames N and N-M;

storing the decoding error maps in error memory;

storing, in a frame memory, video information of the at least two frames which are prior in time to the present video frame;

generating from the decoded motion vectors at least two predicted pixel blocks corresponding to a present pixel block in the present video frame; and

step b) further includes the steps of determining if a predicted pixel block includes decoding errors corresponding to decoding errors in either of the at least two frames which are prior to the present frame; and based on the determining, judging if the predicted pixel block is used in reconstructing the present video block.

17. (Previously Presented) A decoding apparatus according to claim 22, wherein said detector includes

a decoding device for decoding the image signal to define pixel blocks of video frames, the image signal including motion vectors;

means for detecting decoding errors of the pixel blocks being blocks N and N-M in each of at least two frames which are prior to a present video frame said present frame being frame N+1, said at least two frames being frames N and N-M;

an error memory for storing decoding error maps of the decoding errors of the pixel blocks in each of the at least two frames which are prior to the present frame;

motion compensation means for generating from the decoded motion vectors at least two predicted pixel blocks corresponding to a present block which is block N+1 in a present video frame which is frame N+1; and

predicted image selecting means, based on the decoding error maps, determining if the predicted pixel blocks include decoding errors corresponding to decoding errors in either of the at least two frames which are prior to the present frame, and thereby determining use of the predicted pixel blocks in reconstructing the present block.

18. (Previously Presented) The decoding apparatus of claim 17, wherein the video signal is a bit stream of variable length code, and the decoding device separates and decodes the variable length code from the bit stream and writes presence or absence of decoding errors in the decoding error maps.

19. (Previously Presented) The decoding apparatus of claim 17, wherein the motion compensation means generates one predicted pixel block based on a reconstructed video frame which is one frame before the present frame, and generates another predicted pixel block based on a reconstructed video frame which is two frames before the present frame.

20. (Previously Presented) A decoding apparatus according to claim 22, wherein said detector includes

means for decoding the bit stream for information defining pixel blocks, the information including motion vectors;

means for detecting an error in the information of one of the pixel blocks being blocks N and N-M in each of at least two frames which are prior to a present frame said present frame being frame N+1, said at least two frames being frames N and N-M;

means for storing error information of the one of the pixel blocks in each of the at least two frames which are prior to the present frame;

means for storing video information of the at least two frames which are prior to a present frame;

means for generating from the decoded motion vectors at least two predicted pixel blocks corresponding to a present pixel block which is block N+1 in the present frame;

means for judging if one of the at least two predicted pixel blocks corresponds to error information of the at least two frames stored in the means for storing; and

means for determining if the one of the at least two predicted pixel blocks is used in reconstructing the present block, based on judging of the means for judging.

21. (Previously Presented) A method of decoding block N+1 in frame N+1 of successive frames of a predictively coded image signal, said method comprising the steps of:

a) evaluating block N of frame N and block N-M of frame N-M of said signal, wherein blocks N-M, N and N+1 are in corresponding locations of frames N-M, N and N+1, respectively, M=>1;

b) identifying an error in one of block N and block N-M;

c) using the other of block N and block N-M to decode block N+1.

22. (Previously Presented) Apparatus for decoding block N+1 in frame N+1 of successive frames of a predictively coded image signal, said apparatus comprising:

a detector for evaluating block N of frame N and block N-M of frame N-M of said signal, wherein blocks N-M, N and N+1 are in corresponding locations of frames N-M, N and N+1, respectively, M=>1 and for identifying an error in one of block N and block N-M; and

a decoder for using the other of block N and block N-M to decode block N+1.

APP/2613

PTO/SB/21 (04-04) (AW 06/2004)
Approved for use through 7/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	09/050,808
Filing Date	March 30, 1998
First Named Inventor	Yutaka MACHIDA
Art Unit	2613
Examiner Name	Allen C. Wong
Attorney Docket No.	MAT-5860

ENCLOSURES *(Check all that apply)*

- ☒ Fee Transmittal Form
  - ☒ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/Declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
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Firm or Individual Name	Lawrence E. Ashery	*Registration No. (Attorney/Agent)*	34,515
Signature			
Date	July 2, 2004		

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PTO/SB/17 (10-03) (AW 12/2003)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330

Complete if Known	
Application Number	09/050,808
Filing Date	March 30, 1998
First Named Inventor	Yutaka MACHIDA
Examiner Name	Allen C. Wong
Art Unit	2613
Attorney Docket No.	MAT-5860

METHOD OF PAYMENT *(check all that apply)*

☒ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None

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Deposit Account Name: RatnerPrestia

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filling fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
Total Claims		-20** =	0	X		=	0
Independent Claims		-3** =	0	X		=	0
Multiple Dependent				X		=	0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive – unavoidable	
1453	1,330	2453	665	Petition to revive – unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
				Other fee (specify)	

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) ($) 330

SUBMITTED BY

				Complete *(if applicable)*	
Name (Print/Type)	Lawrence E. Ashery	*Registration No. Attorney/Agent)*	34,515	*Telephone*	610-407-0700
Signature				*Date*	July 2, 2004

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